

-16-

CLAIMS:

1. Apparatus for guiding a cutting tool in a surgical procedure on a bone which comprises:

a. a fixation block which can be fitted on to a bone,

5 b. a guide block which can be fitted on to the fixation block, the guide block defining a path for a cutting tool,

in which (i) the guide block can be translated relative to the fixation block along a translation axis so as to vary the distance between the guide block and the fixation block, and (ii) the orientation of the guide block relative to the fixation block can be adjusted rotationally about a pivot axis which is approximately perpendicular to the translation axis, and

10 c. a worm drive assembly for adjusting the orientation of the guide block rotationally relative to the fixation block about the said pivot axis.

2. Apparatus as claimed in claim 1, in which the fixation block has a recess formed in it, and in which the worm drive assembly includes a mount element which is located in the recess, in which the guide block can be fitted on to the mount element, and in which the mount element can be rotated within the recess to adjust the orientation of the guide block relative to the fixation block about the said pivot axis.

3. Apparatus as claimed in claim 1, which includes an orientation adjuster which can be manipulated to adjust the rotational orientation of the guide block relative to the fixation block about the pivot axis.

4. Apparatus as claimed in claim 2, which includes an orientation adjuster which can be manipulated to adjust the rotational orientation of the guide block relative to the fixation block, in which the orientation adjuster is threaded at one end and engages a surface of the mount element which is arranged approximately parallel to the axis of rotational adjustment of the guide block threadingly at or towards one end.

-17-

5. Apparatus as claimed in claim 1, in which the translation axis and the pivot axis intersect.

6. Apparatus as claimed in claim 1, which includes a connector pin which extends between the fixation block and the guide block.

5 7. Apparatus as claimed in claim 6, in which the connector pin is threaded along at least a portion of its length, and in which the guide block can be made to move along the translation axis by rotation of the connector pin.

8. Apparatus as claimed in claim 7, in which the connector pin is threaded remote from the end where it engages the fixation block.

10 9. Apparatus as claimed in claim 1, which includes a first adjuster for adjusting the orientation of the guide block relative to the fixation block and a second adjuster for translating the fixation block relative to the guide block.

10. Apparatus as claimed in claim 9, in which the first and second adjusters are located at or towards one end of the fixation block.

15 11. Apparatus as claimed in claim 1, in which the guide block has a slot formed in it which can receive the blade of a saw.

12. A device for guiding an instrument in a guiding path when performing an invasive procedure on an extremity of a bone comprising:

a fixing block fixable on the extremity of the bone in a fixing plane;

20 a guiding block mountable on the fixing block substantially in the fixing plane, wherein the guiding block defines the guiding path; and

a first manipulator for manipulating the guiding path rotationally with respect to the fixing block about an axis substantially perpendicular to the fixing plane and/or a second manipulator for manipulating the guiding path substantially linearly with respect to
25 the fixing block along an axis substantially in the fixing plane, wherein the first

-18-

manipulator and/or second manipulator are manipulable from a position or positions at or near to a transverse end of the device.

13. A device as claimed in claim 12, wherein the guiding path is a substantially planar path.

5 14. A device as claimed in claim 12, which includes:
a first guiding block mountable on the fixing block substantially in the fixing plane, wherein said first guiding block defines a posterior guiding path; and
a second guiding block mountable on the fixing block substantially in the fixing plane, wherein said second guiding block defines an anterior guiding path.

10 15. A device as claimed in claim 14, wherein the first guiding block and second guiding block have opposite handedness.

16. A device as claimed in claim 12, which includes a first manipulator for manipulating the guiding path rotationally with respect to the fixing block about the axis substantially perpendicular to the fixing plane, wherein the first manipulator is manipulable
15 from a position at or near to a transverse end of the device.

17. A device as claimed in claim 12, which includes a second manipulator for manipulating the guiding path substantially linearly with respect to the fixing block along an axis substantially in the fixing plane, wherein the second manipulator is manipulable from a position at or near to a transverse end of the device.

20 18. A device as claimed in claim 12, which includes a first manipulator for manipulating the guiding path rotationally with respect to the fixing block about an axis substantially perpendicular to the fixing plane and a second manipulator for manipulating the guiding path substantially linearly with respect to the fixing block along an axis substantially in the fixing plane, wherein the first manipulator and second manipulator are
25 manipulable from a position or positions at or near to a transverse end of the device.

-19-

19. A device as claimed in claim 12, in which the first manipulator manipulates the guiding path rotationally about the axis of a rotational pivot shaft.

20. A device as claimed in claim 19, in which the rotational pivot shaft is pivotally mounted internally in the fixing block.

5 21. A device as claimed in claim 18, in which the first manipulator comprises an exterior actuator connected to a stem with an end portion which drives the rotational pivot shaft rotationally.

22. A device as claimed in claim 21, in which the first manipulator translates rotational manipulation of the exterior actuator into rotational motion of the rotational
10 pivot shaft about its axis.

23. A device as claimed in claim 21, in which the end portion is threaded and engages an array of teeth on the exterior surface of the rotational pivot shaft so as to translate rotational manipulation of the exterior actuator into rotational motion of the rotational pivot shaft about its axis.

15 24. A device as claimed in claim 23, in which the teeth are concave parallel teeth.

25. A device as claimed in claim 12, in which the second manipulator manipulates the guiding path substantially linearly along an axis in the fixing plane by the engagement of complementary threaded portions.

20 26. A device as claimed in claim 25, in which the second manipulator comprises an exterior actuator connected to a stem with a threaded portion which engages a complementary threaded portion.

27. A device as claimed in claim 12, wherein the axis substantially perpendicular to the fixing plane and the axis in the fixing plane intersect.

-20-

28. A device as claimed in claim 27, wherein the axis substantially perpendicular to the fixing plane and the axis in the fixing plane intersect at an axis of a rotational pivot shaft.

29. A device as claimed in claim 28, in which the second manipulator comprises an exterior actuator connected to a stem with a threaded portion which engages a complementary threaded bore in the rotational pivot shaft.

5